April 1, 2004

TABLE OF CONTENTS

INTRODUCTION

In response to the rapid growth occurring throughout the state of Utah, Our City citizens and leaders are becoming concerned for the future cost and availability of the water supply. A similar concern has been demonstrated by the state legislature in the Water Conservation Plan Act (House Bill 153) passed and revised in the 1999 legislative session (Section 73-10-32 Utah Code Annotated). This water conservation plan is written to address the concerns of leaders and citizens of both Our City and the state of Utah.

DESCRIPTION OF OUR CITY AND ITS WATER SYSTEM

(See Worksheet 1)

Located in the heart of Waterton County, and in the second driest state in the nation, Our City's 2003 population was approximately 65,000. Providing water to meet the needs of its citizens has always been a top priority of city leaders and planners. As a result, a well-maintained and operated water system provides the citizens of Our City with water when and where needed. Currently, the water system provides water to 20,150 residential, 800 commercial, 130 industrial, and 50 institutional (public) connections.

Our City residents and their leaders place a high value on open space. Consequently, 380 acres of land in the city have been set aside as parks and a cemetery. Golf courses and landscaped areas around schools, churches and major industries occupy approximately another 450 acres. As of January 2003, Our City still had nearly 4,000 acres of vacant land in agricultural zones, more than 2,100 vacant acres in manufacturing zones, and more than 1,000 acres in undeveloped residential zones. Much of the vacant agricultural land was previously in dry land agriculture and was never irrigated.

Our City is presently receiving a significant portion of the county's residential, commercial and industrial growth. This growth is causing changes in the way the land within the city limits is being utilized and straining the ability of the present water supply and delivery system to meet demands. Through careful planning and efficient utilization of available water supplies these increased needs can and will be met.

Inventory of Water Resources

Our City has been withdrawing approximately 5,500 acre-feet of water annually from an underlying aquifer through wells. This has supplied about half of the total water required to meet demands on the culinary system which provides for both indoor and outdoor water uses. The remaining water needs of the city's 65,000 people must come from city owned stock in local irrigation companies and the Waterton County Water Conservancy District (the district).

Potable water for future city residents will, for the most part come from the district. For planning purposes the amount withdrawn from the six wells is held level at 5,500 acre-feet, which is the approximate safe yield.

The city owns shares of stock in several local canal companies as shown below. Water provided under these shares is, and will continue to be, used for irrigation of city-owned parks and open spaces.

Table 1
City-Owned Stock in Local Canal Companies

Canal	Shares	Acre-Feet
Preator High Line	120	120
Condor Bench	28	112
Prudish Distributing	242	121
Carson Ditch	8	24

Under current water rights the city is entitled to withdraw 8,000 acre-feet annually from wells shown below. As mentioned above, the safe yield of these wells is about 5,500 acre-feet.

able 2
ity-Owned Water Rights

Well Name/No.	Water Right #	CFS	Total CFS
Well #12	95-3584	2.5	**2.5**
Fire Mountain Well	95-5082	2.0	**2.0**
Blaney's Creek Well	99-4003	2.0	**4.14**
	99-1573	1.0	
	99-5284	1.14	
Doctor's Well	87-1024	0.2025	**2.24**
	87-2811	0.2415	
	87-2628	1.0	
	87-3088	0.8	
Steadfast Well	87-5157	0.56	**1.74**
	87-1615	1.18	
Well # 9	87-5081	4.0	**6.41**
	87-3089	1.41	
	89-1572	1.0	

In addition, the city's contract with the district requires it take the amounts shown below for years since 2003. The contract requires the city to pay for the amount shown, whether it is needed or not.

able 3
:ontracted Water Supply

Year	Minimum Acre-Feet
2003	5,900
2004	6,300
2005	6,600
2006	6,850
2007	7,100
2008	7,400
2009	7,700
2010 +	8,100

The city is expected to need all of the 8,100 acre-feet provided for in the contract by year 2010.

Water Budgets

The following table shows the amount of water delivered into the water system and the metered outflows to end-users for the years 1999 to 2003.

able 4
:ity Water Budget - 1999 through 2003

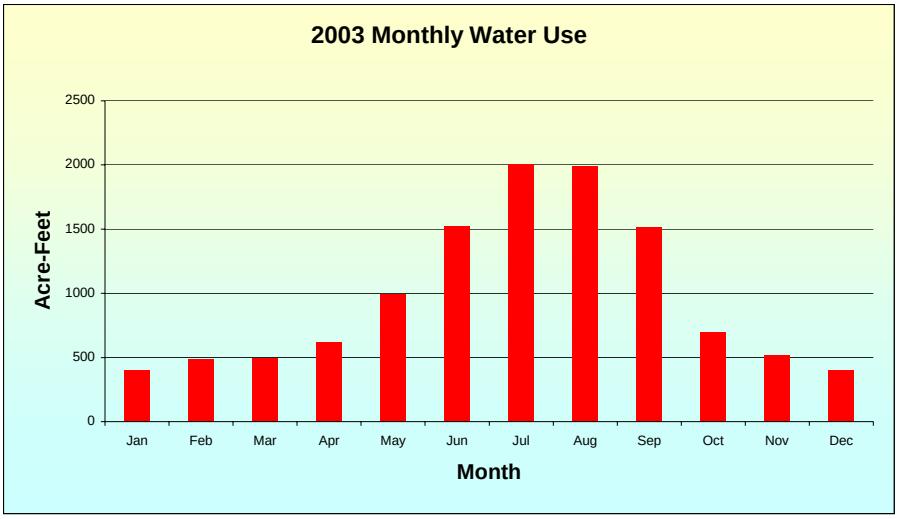
	INFLOW (AF)			OUTFLOW (AF)				
Year	Wells	District	Total	Res	Com	Ind	Total	% Diff.
1999	5,346	5,011	10,357	NA	NA	NA	9,180	-12.33
2000	6,768	5,613	12,381	NA	NA	NA	12,005	-3.04
2001	6,900	4,852	11,752	NA	NA	NA	10,783	-8.25
2002	6,530	6,732	13,262	11,662	123	1,228	13,013	-1.88
2003	6,703	5,120	11,823	9,974	153	1,534	11,661	-1.37

Average losses from the system are just over 5 percent for the five years of record and have been 5 percent or less since 1992.

Present Water Use And Future Water Needs

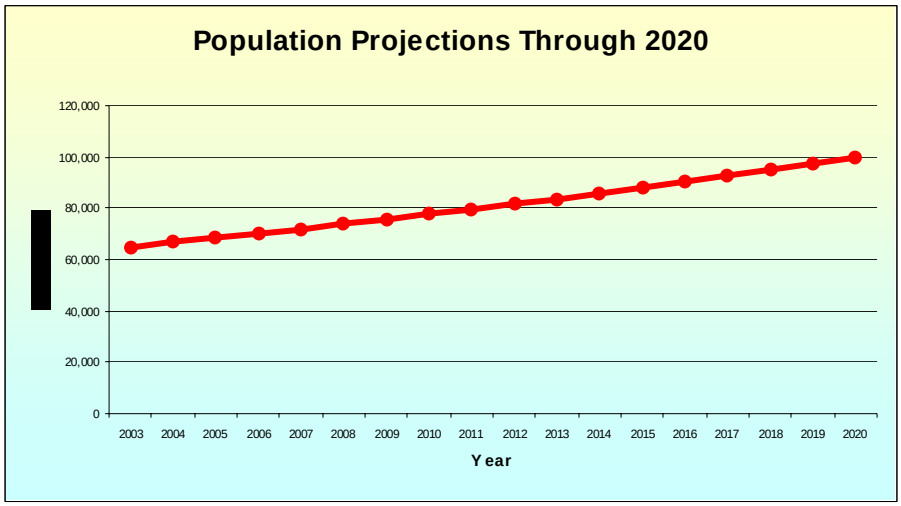
When all uses of culinary grade water are compared with the number of people living in Our City in 2003, residents use 257 gallons of water per capita per day (gpcd). This is compared to the statewide average of 293 gpcd and 184 gpcd nationally. Unmetered secondary irrigation systems, which provide lower quality water to the extensive public and private landscaped areas through separate pipelines, have been installed at the regional sports park and will eventually be extended to irrigate all city-owned parks. Several residential subdivisions located adjacent to canals have been fitted for these irrigation systems as the city developed. When this untreated water is included, total water use is estimated to be 300 gpcd. Total monthly water use for 2003 is shown in Figure 1.

Figure 1



The extent of the city's expected future population growth through the year 2020 is shown in Figure 2. Many factors influence this projection, and the estimates shown may vary substantially from the actual population experienced.

Figure 2



Cream of Heber Ice Water Inc. has recently moved into the city and will soon be using large volumes of treated city water in its production process. Micro Bean, a leading computer chip maker and employer also requires a significant amount of high quality production water.

As a part of this growth new parks and other open spaces are planned in conjunction with new residential and commercial/industrial developments in the area west of 27th East Street.

WATER PROBLEMS, CONSERVATION MEASURES AND GOALS

(See Worksheet 2)

Problems Identified

The Water Conservation Committee, in its recent report, identified and prioritized several problems during the investigative phase of their work.

- The current water pricing and billing system, while adequate to cover expenses in the water enterprise account, lacks incentives and sufficient information for residents and businesses to use water more efficiently.

- Citizens lack information and understanding of landscaping water requirements and efficient water-use habits and practices: Very few residents know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently indoors. Most citizens' irrigation and indoor practices are based on convenience rather than plant needs and water supply considerations.

- Meters are providing inaccurate data due to age and obsolescence. Many meters have been in service for more than 10 years and need to be replaced.

- Many trees and shrubs on the city's acceptable plants list are high water users. Trees and shrubs on the city's list are preferred because they have non-intrusive root systems.

- Political consequences prevent water rates from keeping up with increasing costs: With the currently available methods for setting water rates, city council action is required for each adjustment. Waterton County Water Conservancy District has programmed a 4 percent increase in their rates to wholesale customers each year for the foreseeable future. Raising rates often is deferred as long as possible because of political risks to members of the city council.

- Our City families have landscapes with large areas of grass and other water intensive landscaping. As shown in the following chart, these irrigation needs usually create a water use peak in July straining the

existing water delivery system and necessitating constant upgrades to main delivery lines and reservoir capacities.

Each problem represents an opportunity. Aside from replacement of meters and high water-use landscaping, the opportunity exists to solve the above problems through a well-thought-out water pricing program.

In addition to a new pricing and billing system, the opportunity exists to prepare a new generation of wise-water users. This can be assisted with a strong sustained water education program in the public and private schools.

Additional opportunities can be found in the two of the remaining problems. Old meters may provide an opportunity for the city to begin a program to replace old meters with modern remote-read meters that can create substantial savings through reduced labor. High water using plants on an "acceptable plants list" could provide an opportunity for the Urban Forestry Committee to undertake research to find additional water thrifty plants that do not have intrusive root systems, and may improve landscape quality and appearance. Landscaping along existing and future roads in the city could be more easily maintained if low water-use shrubs and mulches were used instead of Kentucky blue grass. All this will help solve the last problem identified by reducing peak demands and the need for expensive water system upgrades.

Water Conservation Goals

In pursuit of solutions to the problems identified previously, and in light of the variety of conservation measures available to solve these problems, the following goals have been identified:

- **GOAL #1**
  Reduce the city's per capita water use rate by at least 15 percent in five years. The water-use rate is currently 221 gallons of treated water per capita per day (gpcd). The goal is to bring this down to 188 gpcd.

- **GOAL #2**
  Maintain a financially viable water system. The water pricing system should encourage customers to reduce use without creating a revenue shortfall.

- **GOAL #3**
  Maintain or improve the appearance of street landscapes, open spaces and yards. Improved irrigation practices and water efficient landscapes can enhance the beauty of the city. Annual surveys of citizen attitudes will measure satisfaction, or lack thereof, with landscapes on city-owned properties and rights-of-way.

CURRENT CONSERVATION PRACTICES

(See Worksheet 3)

In order to solve the problems identified above and take advantage of the many associated opportunities, specific water conservation measures must be identified and evaluated. Our City has already implemented several water conservation measures; these, along with additional measures that will effectively solve Our City's water problems, are discussed below.

Our City's current water conservation program is directed primarily at managing water shortages and providing useful material to assist residents to use water more efficiently. Current measures include a water conservation contingency plan, water education program for outdoor and indoor water use, and a conservation oriented water rate structure.

1. Water Conservation Contingency Plan

The city has a "Water Conservation Contingency Plan" dated April 1994, which spells out climate and political realities related to water use during drought or other water supply shortages. Also addressed in this report are the conservation measures that may be implemented during times of emergency. They are as follows:

Level 1 – Normal Years

- Eliminate watering on city property from 8 a.m. to 8 p.m.
- Initiate voluntary public conservation measures.
- Issue information to all customers on conservation procedures each can accomplish around their own property and within their own homes.

Level 2 – 75% of Normal

- Eliminate watering of city property.
- Educate the public on the water supply decreases.
- Initiate mandatory public conservation measure.
- Enforce outside watering restrictions including watering times and quantities.

Level 3 – 50% of Normal

- Strictly enforce all conservation policies with significant fines for non-compliance.
- Physically restrict water supplies to (in order of priority):
  - All outside irrigation systems
  - Park properties and other non-essential support facilities
  - Commercial businesses, restricting largest users first
  - Residential areas
  - Any other "non-life support" areas, insuring water supplies to hospitals, hospices, and all other heath care facilities, and controlled designated area water facilities.

Additional non-emergency water conservation measures are listed below.

2. Water Education Program

The following information on efficient outdoor and indoor water use is available to the citizens of Our City through the city and county libraries and is occasionally disseminated with the water bill.

Outdoor Water Use:

- Water landscape only as much as required by the type of landscape, and the specific weather patterns of your area, including cutting back on watering times in the spring and fall.
- Do not water on hot, sunny, and/or windy days. You may actually end up doing more harm than good to your landscape, as well as wasting a significant amount of water.
- Sweep sidewalks and driveways instead of using the hose to clean them off.
- Wash your car from a bucket of soapy (biodegradable) water and rinse while parked on or near the grass or landscape so that all the water running off goes to beneficial use instead of running down the gutter to waste.
- Check for and repair leaks in all pipes, hoses, faucets, couplings, valves, etc. Verify there are no leaks by turning everything off and checking your water meter to see if it is still running. Some underground leaks may not be visible due to draining off into storm drains, ditches, or traveling outside your property.
- Use mulch around trees and shrubs, as well as in your garden to retain as much moisture as possible. Areas with drip systems will use much less water, particularly during hot, dry and windy conditions.
- Keep your lawn well trimmed and all other landscaped areas free of weeds to reduce overall water needs of your yard.

Indoor Water Use:

About two-thirds of the total water used in a household is used in the bathroom. Concentrate on reducing your bathroom use. Following are suggestions for this specific area:

- Do not use your toilet as a wastebasket. Put all tissues, wrappers, diapers, cigarette butts, etc. in the trashcan.
- Check the toilet for leaks. Is the water level too high? Put a few drops of food coloring in the tank. If the bowl water becomes colored without flushing, there is a leak.
- If you do not have a low volume flush toilet, put a plastic bottle full of sand and water to reduce the amount of water used per flush. However, be careful not to over conserve to the point of having to flush twice to make

the toilet work. Also, be sure the containers used do not interfere with the flushing mechanism.

- Take short showers with the water turned up only as much as necessary. Turn the shower off while soaping up or shampooing. Install low flow showerheads and/or other flow restriction devices.
- Do not let the water run while shaving or brushing your teeth. Fill the sink or a glass instead.
- When doing laundry, make sure you always wash a full load or adjust the water level appropriately if your machine will do that. Most machines use 40 gallons or more for each load, whether it is two socks or a week's worth of clothes.
- Repair any leak within the household. Even a minor slow drip can waste up to 15 to 20 gallons of water a day.
- Know where your main shutoff valve is and make sure that it works. Shutting the water off yourself when a pipe breaks or a leak occurs will not only save water, but also eliminate or minimize damage to your personal property.
- Keep a jar of water in the refrigerator for a cold drink instead of running water from the tap until it gets cold. You are putting several glasses of water down the drain for one cold drink.
- Plug the sink when rinsing vegetables, dishes, or anything else; use only a sink full of water instead of continually running water down the drain.

CURRENT WATER RATES

(See Worksheet 4)

Designing an appropriate rate schedule is a complex task. Rate design is a process of matching the costs of operating the water system to the unique economic, political and social environments in which the city provides its service. The cost of delivering the service must be evaluated and understood. Each water system has unique assets and constraints. Based on the characteristics of the system, and past capital and operating costs, revenue requirements can be estimated.

City staff has estimated the cost of providing water service and proposed a rate schedule designed to cover such costs. Although this rate schedule shown below has recently been adopted by the City Council, it still contains some flaws that could be improved upon with a more conservation oriented rate schedule.

Table 5
Current Water Rates

Type:	**Increasing Block Rate**
Base Charge:	**$9.71/month**
Base Allocation:	**6 Kgal/month**

Amount of Water	**Rate**
6 to 40 Kgal	$0.80/Kgal
40 to 100 Kgal	$1.10/Kgal
100+ Kgal	$0.80/Kgal

This rate schedule is designed to encourage conservation by raising the initial volume charge from $.55 in the old rate schedule to $.80, and the second step from $.60 to $1.10. The first step of the volume charge was stretched from 6,001 - 18,000 gallons in the old rate schedule to 6,001 - 40,000 gallons in the new.

ADDITIONAL CONSERVATION MEASURES

(See Worksheet 5)

In order to effectively meet Our City's future water needs and solve all the water problems identified, additional and more specific water conservation measures will be required. These include more stringent water rates, meter replacement and leak repair, improved efficiency of irrigation at city parks and other open spaces, education, and plumbing fixture replacement.

1. More Stringent Water Rate Structure

The Water Conservation Committee, using revenue requirements estimated by the city staff, investigated a different rate schedule designed to meet those requirements, provide additional price incentives for efficient water use, show the customer how much water is needed each month and provide funding for water conservation assistance and education. This rate schedule is called "Target Billing".

Table 6
Possible Water Rates

Type:	**Target Billing**
Base Charge:	**$10.00/month**
Base Allocation:	**0 Kgal/month**

% of Target	**Rate**
0 – 50%	$0.71/Kgal
51 – 100%	$0.95/Kgal
101 – 150%	$1.50
151 – 200%	$3.00
201% +	$6.00/Kgal

This rate schedule is designed to meet revenue requirements while creating funding for the water conservation program from fees paid by those who waste

water. The water user who uses water indiscriminately and falls into the most expensive tier experiences a volume charge of $6.00/Kgal for the last block.

2. Meter Replacement and Leak Detection Program

Over time, all meters become less accurate in recording actual flows. This leads to lost revenue to the city and inaccurate data to citizens. A recent survey of randomly chosen meters revealed that nearly 10 percent of the water delivered to the city is not being registered on the meters. City income from metered water is more than $3 million. When sewer revenues, which are calculated based on metered winter usage are accounted for, total revenue dependent on metered deliveries is more than $5 million. If only water sales were considered, $300,000 annually is lost due to old meters.

The cost to replace 10,000 meters is approximately $1,500,000. The meter replacement program would pay for itself in five years with enhanced revenues continuing for five to ten years after that. Meter replacement does not result directly in lower water use since the rate in this plan is based on total inflow of potable water. Once meters are upgraded however, leak detection programs that do reduce water purchases and the use rate, will be more effective.

3. Improved Efficiency in Irrigating City Parks and Other Open Spaces

A recent water audit of parks and open spaces for a nearby city indicated that most large turf areas were being over irrigated by up to 50 percent. Our City presently has 380 acres in parks, cemeteries and sports fields. Open grassy areas around schools and churches bring the total acreage in open grassy areas to 440 acres. Estimating present usage at 3.2 acre-feet per acre, approximately 1,400 acre-feet of water is currently being used.

A combination of water pricing incentives and education programs, including audits, will likely reduce potable water used for irrigating open spaces by 20 percent or 280 acre-feet. This will reduce the use rate by about four gpcd. Changing irrigation of the 100 acres plus sports parks from potable to raw water sources will further reduce the treated water use rate by an additional six gpcd. Charging the city parks department for their water use will also be implemented in the next fiscal year.

4. Education

Educating residents and businesses that irrigate landscapes to use water more efficiently will enhance the likelihood that our water use goals will be met. The Water Conservation Committee is preparing to launch the initial phase of such an education program in September. Benefits and costs of a strong education program are difficult to enumerate but will be tracked and accounted for as it unfolds.

5. Plumbing Fixture Replacement

Incentives to exchange old high water-use toilets and shower heads for new more efficient ones can be provided through city cost sharing using revenues generated by penalty tiers in the rate schedule. While it is difficult to calculate meaningful estimates of the benefits and costs of such programs on the water-use rate, there is ample evidence in the literature that such programs are effective. The Division of Water Resources estimated in 1995 that such programs could reduce residential indoor water use by 33 percent.

Many of the city's homes and businesses have been built since 1992 when plumbing codes were revised to require low water-use toilets and low flow showerheads in new construction. Assuming one-half of the 221 gallons per capita per day is used outdoors, then 110.5 gpcd is being used indoors. Reducing this by only 20 percent will save 22 gpcd. Using an average occupancy of 3.7 people per connection this will save 81 gallons per day in each home. If 60 percent (10,280) of the existing residential equivalent connections in the city have old plumbing, the reduction in water use would be 833,000 gallon per day. Dividing this by the city's 2003 population of 65,000 gives a potential reduction of 13 gpcd. If only half the eligible families and businesses (5,140) participated in a program to exchange old fixtures for new ones, the use rate will decrease by 6.5 gpcd.

If the city were to spend $60 per toilet, and each participating family replaced 1.5 toilets on average, the cost would be $308,000. The benefit of the program is a reduction of 468 acre-feet of water annually. Using the current average price of purchased water ($240/af), the annual benefit (savings) is $112,200.

COST ANALYSIS

(See Worksheet 6)

Initially, Our City will strive to reach Goal #1 (*reduce the city's per capita water use rate by at least 15 percent in five years*) to reduce the city's per capita use rate by at least 15 percent in five years. The short-term and long-term benefits of reaching this goal are discussed below. This discussion is followed by how this water plan will be implemented and updated.

Benefit of Reaching Goal #1:

The result of an effective program to boost the efficiency with which water is used in the city (a reduction of 15 percent in per capita water use) is shown in Table 7. Benefits are measured as the savings accruing to the city due to reduced water purchased from the water conservancy district over the five years 1999 through 2003. It is assumed that the recently adopted rate schedule will result in the water savings counted for 1998, and the effects of this rate schedule, along with a strong education program will be effective until 2000 when a new rate schedule may be adopted. The new ascending block rate will provide the incentive needed to reduce the water use rate to 188 gpcd through 2002 and beyond. As

shown in Table 7, by reducing potable water use from 221 gallons per capita day (gpcd) to 188, more than 8,000 acre-feet less water will be purchased, saving the city more than $2 million in five years.

If the city can reduce the average use rate (gallons per capita per day or gpcd) from 221 to 188 or 15 percent, and maintain it until 2015, more than $18 million will be saved by purchasing 52,300 acre-feet less water. The present value of such savings is $10,878,000 as shown in Table 7.

able 6
ong Term Benefits of Water Conservation Program

		Future Use Without Conservation				Future Use With Conservation		
Year	Population	Purchased Water (AF)	Cost / AF	Total Cost ($)	gpcd	Purchased Water (AF)	Total Cost ($)	gpcd
2003	64,211	10,895	240	2,614,932	221	10,536	2,528,621	216
2004	67,796	11,783	250	2,941,042	221	10,796	2,694,628	208
2005	71,580	12,720	260	3,301,846	221	11,116	2,885,577	201
2006	75,576	13,709	270	3,700,976	221	11,508	3,106,762	195
2007	79,795	14,753	281	4,142,253	221	11,804	3,314,105	188
2008	81,399	15,150	292	4,423,878	221	12,142	3,545,292	188
2009	83,035	15,555	304	4,723,829	221	12,486	3,791,734	188
2010	84,704	15,969	316	5,043,270	221	12,838	4,054,406	188
2011	86,407	16,390	328	5,383,435	221	13,196	4,334,346	188
2012	88,143	16,820	342	5,745,638	221	13,562	4,632,655	188
2013	89,915	17,259	355	6,131,274	221	13,935	4,950,506	188
2014	91,722	17,706	370	6,541,825	221	14,316	5,289,143	188
2015	93,566	18,162	384	6,978,865	221	14,704	5,649,890	188
2016	95,447	18,628	400	7,444,067	221	15,100	6,034,153	188
2017	97,365	19,103	416	7,939,209	221	15,504	6,443,425	188
2018	99,322	19,587	432	8,466,177	221	15,916	6,879,294	188
2019	101,318	20,082	450	9,026,977	221	16,336	7,343,446	188
2020	103,355	20,586	467	9,623,740	221	16,765	7,837,675	188
	TOTAL	**294,858**		**$104,173,231**		**242,560**	**$85,315,659**	

Note: Future use with conservation saved 52,298 acre-feet and $18,857,572.

Cost of Reaching Goal #1:

The costs incurred to achieve this benefit are mostly the salary for one full-time water conservation coordinator estimated at $50,000 per year. This $250,000 cost, over five years, will be offset by increased revenue to the water enterprise fund generated by the penalty tiers in the ascending block rate structure once it is adopted, hopefully by the spring of year 2005. Additional costs are anticipated for educational materials, meeting presentations, and water audits etc. The cost of replacing water meters is not counted in the cost of conservation because it is a standard operational procedure and not solely a conservation measure, and because it pays for itself in about five years. If these additional costs add up to another $250,000, total cost of the water conservation program over five years is $500,000. The benefit to cost ratio is: $2,000,000/$500,000 = 4.0.

IMPLEMENTING AND UPDATING THE WATER CONSERVATION PLAN

(See Worksheet 7)

To insure the goals outlined above are reached, appropriate tasks must be determined, responsibility fixed with the logical person or department, and a time line set for completion of each task. The Water Conservation Committee recommended a full time staff position be created to supervise and lead the water conservation program. The city council has authorized this position and will have responsibility for providing funding for the measures outlined in this plan. The city manager and their staff will be responsible, under the supervision of the water conservation coordinator, to carry out the necessary task within the appropriate time constraints.

This water conservation plan was placed on the April 5, 2004 strategic planning agenda and adopted by the city council. The city council is comprised of:

- Janice Thompson, Mayor
- Dean Fie, Deputy Mayor
- Jensen Holt, Council Member District 1
- Barbara Bean, Council Member District 2
- Dave Swenson, Council Member District 3
- Henrietta Swan, Council Member District 4
- Blake Fullmer, Council Member District 5
- Fred Rogers, Council Member District 6

It was also recommended the water conservation coordinator make quarterly reports on progress toward goals to the water conservation committee and city council. The water conservation plan will be revised and updated as required to meet changing conditions and needs. This plan will also be updated and resubmitted to the Utah Division of Water Resources in April of 2009, as required by legislative House Bill 153. The ordaining ordinance for the water conservation plan is attached as Appendix A.

APPENDIX A – Water Conservation Plan Ordinance

WATER CONSERVATION PLAN

Our City, Utah
A Municipal Corporation
ORDINANCE NO._____

AN ORDINANCE AMENDING PROVISION OF THE OUR CITY MUNICIPAL CODE PERTAINING TO THE ADOPTION OF A WATER CONSERVATION PLAN.

Section 1. Preamble
A. WHEREAS, [the City] operates a culinary water system; and
B. WHEREAS, the city council understands the pressing need to use water in a more efficient manner to allow for future sustained growth of the community;

Section 2. Ordaining Clause
NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF OUR CITY, UTAH:

Section 4 Subsection 393 of the Our City Municipal Code is hereby to read as follows:

Section 3. Water Conservation Plan
The water conservation plan of Our City, adopted on the 5th day of April, 1999, and revised on this 10th day of April, 2004, is hereby readopted. The plan will be amended no less than every five years and will continue to play a vital role in the future development of Our City, Utah.

Signed:

_____ Janice Thompson, Mayor

_____ Dean Fie, Deputy Mayor

_____ Jensen Holt, Council Member

_____ Barbara Bean, Council Member

_____ Dave Swenson, Council Member

_____ Henrietta Swan, Council Member

_____ Blake Fullmer, Council Member

_____ Fred Rogers, Council Member

APPENDIX B – WORKSHEETS

1 - Water System Profile

The Water System Profile worksheet will help you describe key elements of your water system. Once the worksheet is completed, use it to help write the Water System Profile section of your Water Conservation Plan.

Population

Current population data and future growth projections are requested for your system. These projections can be based on internal agency analysis, or on state-projected numbers from the Governor's Office of Planning and Budget (*http://www.governor.utah.gov/gopb/default.html*).

Current Pop.	_____	10-year Projection	_____
5-year Projection	_____	20-year Projection	_____
		30-year Projection	_____

Annual Water Supply & Purchases

Please list the sources of your water supply (name and type), along with any associated water right numbers. Total culinary and/or secondary water obtained from that source should be reported. Please indicate annual water purchases and price for the past water year.

Source Name	Type	Right #	Culinary (af)	Secondary (af)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Purchases		**Source**
_____ af	$_____ /af	_____
_____ af	$_____ /af	_____
_____ af	$_____ /af	_____
_____ af	$_____ /af	_____
_____ af	$_____ /af	_____

1 - Water System Profile (Cont.)

The Water System Profile worksheet will help you describe key elements of your water system. Once the worksheet is completed, use it to help write the Water System Profile section of your Water Conservation Plan.

Connections & Use

The total number of service connections are requested to be broken up into the following categories: agricultural, residential, industrial, commercial, institutional and other. Total water use should be provided for the previous water year. Total yearly water use should then be divided by population and 365 to calculate the current per capita water use in gallons per capita per day (gpcd).

	Conn.	**Acreage**	**Use (af/yr / kgal/yr)**	
Agricultural	_____	_____	_____	
Residential	_____	_____	_____	
Industrial	_____	_____	_____	
Commercial	_____	_____	_____	
Institutional	_____	_____	_____	
TOTAL	_____	_____	_____	) 365) population = _____ gpcd

Projected Water Use (Current Use * Growth + Current Use)

Current Use	_____	**(af/yr / kgal/yr)**
30-Year Growth	_____	**%**
Projected Use	_____	**(af/yr / kgal/yr)**

Secondary Water Use

Please list all secondary irrigation companies that exist within your service area. Include your agency if they have a secondary water system. Estimate the percentage of your connections that are served by secondary water companies for their lawn and garden needs.

Secondary Water Company		**Secondary Water Company**	
Name	_____	Name	_____
Contact	_____	Contact	_____
Phone	_____	Phone	_____

% of customers w/ secondary access

Agricultural	_____	Commercial	_____	Industrial	_____
Residential	_____	Institutional	_____	**TOTAL**	_____

2 - Identify Problems & Goals

Identify current problems such as low pressure during peak use periods, inadequate conveyance or distribution capacities, and/or insufficient water rights or source capacity. Goals should identify conservation measures that will partially or completely solve the problems you identified. Goals should be measurable, e.g., “reduce per capita water demand by 25 percent within 15 years”. Use this material to write the Problems & Goals section of your Water Conservation Plan (see Sample Plan, pages 6 -7).

Problem 1

_____
_____
_____

Goal 1

_____
_____
_____

Problem 2

_____
_____
_____

Goal 1

_____
_____
_____

Problem 3

_____
_____
_____

Goal 1

_____
_____
_____

Problem 4

_____
_____
_____

Goal 1

_____
_____
_____

3 - Current Conservation Practices

Please list current water conservation measures and their estimated water savings. Copy this page to add more measures. One completed, use this information to write the Current Conservation Practices section of your Water Conservation Plan (see Sample Plan, pages 7 - 10).

Measure 1

Description:

_____

Implemented: ___/____/____ - ___/____/____ Still active? Yes No

Estimated Annual Savings: _____ **Ac Ft**

Comments:

_____

_____

Measure 2

Description:

_____

Implemented: ___/____/____ - ___/____/____ Still active? Yes No

Estimated Annual Savings: _____ **Ac Ft**

Comments:

_____

_____

Measure 3

Description:

_____

Implemented: ___/____/____ - ___/____/____ Still active? Yes No

Estimated Annual Savings: _____ **Ac Ft**

Comments:

_____

_____

Measure 4

Description:

_____

Implemented: ___/____/____ - ___/____/____ Still active? Yes No

Estimated Annual Savings: _____ **Ac Ft**

Comments:

_____

_____

4 - Current Pricing Structure

Please list your current water pricing structure for a standard, residential connection. One completed, use this information to write the Current Pricing Structure section of your Water Conservation Plan (see Sample Plan, pages 10 - 11).

Pricing

Billing Frequency monthly / quarterly / annually / other _____

Base Rate $_____ includes _____Kgal / CCF / CF

$_____ for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

$_____for the next _____Kgal / CCF / CF

Projected Rate Changes

_____
_____
_____
_____
_____

5 – Additional Conservation Measures

Please list additional conservation measures your entity may consider, enhancing conservation efforts and results. The following is a list of Best Management Practices (BMPs) recommended to water providers by the Division of Water Resources. One completed, use this information to write the Additional Conservation Measures section of your Water Conservation Plan (see Sample Plan, pages 11 - 14).

BMP 1 – Comprehensive Water Conservation Plans

- Develop a water management and conservation plan as required by law.
- Plans are to be adopted by the water agency authority (city council, board of directors, etc.) and updated no less than every five years.

BMP 2 – Universal Metering

- Install meters on all residential, commercial, institutional and industrial water connections. Meters should be read on a regular basis.
- Establish a maintenance and replacement program for existing meters.
- Meter secondary water at the most specific level possible, somewhere below source water metering. Individual secondary connection metering should be done as soon as technology permits.

BMP 3 – Incentive Water Conservation Pricing

- Implement a water pricing policy that promotes water conservation.
- Charge for secondary water based on individual use levels as soon as technology permits.

BMP 4 – Water Conservation Ordinances

- Adopt an incentive water rate structure.
- Adopt a time-of-day watering ordinance.
- Adopt an ordinance requiring water-efficient landscaping in all new commercial development. This should include irrigation system efficiency standards and an acceptable plant materials lists.
- Adopt an ordinance prohibiting the general waste of water.

BMP 5 – Water Conservation Coordinator

- Designate a water conservation coordinator to facilitate water conservation programs.

BMP 6 – Public Information Program

- Implement a public information program consistent with the recommendations of the Governor's Water Conservation Team. Such programs can be adapted to meet the specific needs of the local area and may use the "Slow the Flow" logo with approval of the division.

BMP 7 – System Water Audits, Leak Detection and Repair

- Set specific goals to reduce unaccounted for water to an acceptable level.
- Set standards for annual water system accounting that will quantify system losses and trigger repair and replacement programs, using methods consistent with American Water Works Association's Water Audit and Leak Detection Guidebook.

BMP 8 – Large Landscape Conservation Programs and Incentives

- Promote a specialized large landscape water conservation program for all schools, parks and businesses.
- Encourage all large landscape facility managers and workers to attend specialized training in water conservation.
- Provide outdoor water audits to customers with large amenity landscapes.

BMP 9 – Water Survey Programs for Residential Customers

- Implement residential indoor and outdoor water audits to educate residents on how to save water.

BMP 10 – Plumbing Standards

- Review existing plumbing codes and revise them as necessary to ensure water-conserving measures in all new construction.
- Identify homes, office building and other structures built prior to 1992 and develop a strategy to distribute or install high-efficiency plumbing fixtures such as ultra low-flow toilets, showerheads, faucet aerators, etc.

BMP 11 – School Education Programs

- Support state and local water education programs for the elementary school system.

BMP 12 – Conservation Programs for Commercial, Industrial and Institutional Customers

- Change business license requirements to require water reuse and recycling in new commercial and industrial facilities where feasible.
- Provide comprehensive site water audits to those customers known to be large water users.
- Identify obstacles and benefits of installing separate meters for landscapes.

BMP 13 – Reclaimed Water Use

- Use reclaimed or recycled water where feasible.

6 - Cost Analysis

Please perform a cost analysis on conservation programs you hope to implement in your organization. Once completed, use this information to write the Cost Analysis section of your Water Conservation Plan (see Sample Plan, pages 15 - 17).

Description

Give a brief description of the proposed program. Example: "Toilet Distribution and Retrofit Program for Customers Targeted for Older Housing Developments".

Capital Costs

Capital costs are usually one-time purchases, such as equipment or computers, used throughout the life of the program. If you plan to do a showerhead distribution program, the one-time purchase of 5,000 showerheads would be included as a capital cost.

Annual Costs

Annual costs are those costs that will occur on an on-going basis. These costs include salary for personnel devoted to the program and any rentals that may be necessary.

Avoided Costs

Avoided costs are costs that will become unnecessary due directly to the efforts of this program. If it is projected that the program will save 2,000 acre-feet of water, then the cost of purchasing 2,000 additional acre-feet of water each year in the future must be considered an avoided cost.

For instance, if the program saves 2,000 acre-feet and water is valued at $400 per acre-foot, the avoided costs for water purchases is $800,000.

Net Cost / Benefit

The Net Benefit of a program can be derived by adding the capital costs to the annual costs (projected over the duration of the program), and then subtracting the program cost from any avoided costs (benefits) this conservation will produce. Example:

Avoided Costs $178,434

Capital Costs	$54,757
Annual Costs	$12,847
TOTAL	$67,604

Program Duration 5 years

178,434 - (54,757 + (12,847*5)) = $59,442 (total benefit of program)

This example has a Net Benefit of **$59,442** over the life of the program.

Program

Description _____

_____	*minus* (	_____	*plus* (	_____	*times*	_____)	=	_____
Avoided Costs		**Capital Costs**		**Annual Costs**		**Program Duration**		**Total Benefit**

7 - Implementation, Monitoring and Evaluation

Please describe the process for plan implementation, the monitoring of the plan, and evaluation of the success of the program(s) selected. One completed, use this information to write the Implementing and Updating section of your Water Conservation Plan (see Sample Plan, page 17).

Implementation Procedure

Assign Responsibility _____

Budget **Projected Costs** _____ **Fund** _____

Schedule Begin Date _____ End Date _____

Public Involvement _____

Monitoring & Evaluation

Evaluation Schedule Monthly Quarterly Annually Other _____

Data To Be Gathered _____

Evaluation Process _____
_____

Plan Update

Describe the procedure for updating the water conservation plan:

_____
_____
_____